Maximum Ratings / Höchstzulässige Werte

Parameter	Condition		Symbol	Datasheet values max.	Unit
Input Rectifier Bridge Gleichrichter					
Repetitive peak reverse voltage Periodische Rückw. Spitzensperrspannung			V_{RRM}	1600	V
Forward current per diode Dauergrenzstrom	DC current	T_h=80°C Tc=80°C	I_{FAV}	28,9 40, limited by nr. wires	A
Surge forward current Stoßstrom Grenzwert	t_p=10ms	T_j=25°C	I_{FSM}	200	A
I^2t-value Grenzlastintegral	t_p=10ms	T_j=25°C	I^2t	200	A^2s
Power dissipation per Diode Verlustleistung pro Diode	T_j=150°C	T_h=80°C Tc=80°C	P_{tot}	35 53	W
Transistor Inverter Transistor Wechselrichter					
Collector-emitter break down voltage Kollektor-Emitter-Sperrspannung			V_{CE}	600	V
DC collector current Kollektor-Dauergleichstrom	T_j=150°C	T_h=80°C Tc=80°C	I_C	12,6 16, limited by nr. of wires	A
Repetitive peak collector current Periodischer Kollektorspitzenstrom	t_p=1ms	T_h=80°C	I_{cpuls}	25,2	A
Power dissipation per IGBT Verlustleistung pro IGBT	T_j=150°C	T_h=80°C Tc=80°C	P_{tot}	31,8 48,2	W
Gate-emitter peak voltage Gate-Emitter-Spitzenspannung			V_{GE}	±20	V
SC withstand time Kurzschlußverhalten	Tj≤150°C V_{CE}=600 V	V_{GE}=15V	t_{SC}	10	us
Diode Inverter Diode Wechselrichter					
DC forward current Dauergleichstrom	T_j=150°C	T_h=80°C Tc=80°C	I_F	14,8 16, limited by nr. of wires	A
Repetitive peak forward current Periodischer Spitzenstrom	t_p=1ms	T_h=80°C	I_{FRM}	29,5	A
Power dissipation per Diode Verlustleistung pro Diode	T_j=150°C	T_h=80°C Tc=80°C	P_{tot}	25,8 39,1	W
Transistor BRC Transistor BRC					
Collector-emitter break down voltage Kollektor-Emitter-Sperrspannung			V_{CE}	600	V
DC collector current Kollektor-Dauergleichstrom	T_j=150°C	T_h=80°C Tc=80°C	I_C	8, limited by nr. of wires 8, limited by nr. of wires	A
Repetitive peak collector current Periodischer Kollektorspitzenstrom	t_p=1ms	T_h=80°C	I_{cpuls}	19,3	A
Power dissipation per IGBT Verlustleistung pro IGBT	T_j=150°C	T_h=80°C Tc=80°C	P_{tot}	28,4 43,1	W
Gate-emitter peak voltage Gate-Emitter-Spitzenspannung			V_{GE}	±20	V
SC withstand time Kurzschlußverhalten	Tj≤150°C VCE=600 V	VGE=15V	t_{SC}	10	us

Maximum Ratings / Höchstzulässige Werte

Parameter	Condition		Symbol	Datasheet values max.	Unit
Diode BRC **Diode BRC**					
DC forward current Dauergleichstrom	T_j=150°C	T_h=80°C Tc=80°C	I_F	8, limited by nr. of wires 8, limited by nr. of wires	A
Repetitive peak forward current Periodischer Spitzenstrom	t_p=1ms	T_h=80°C	I_{FRM}	30	A
Power dissipation per Diode Verlustleistung pro Diode	T_j=150°C	T_h=80°C Tc=80°C	P_{tot}	25,8 39,1	W
Thermal properties **Thermische Eigenschaften**					
max. Chip temperature max. Chiptemperatur			T_{jmax}	150	°C
Storage temperature Lagertemperatur			T_{stg}	-40…+125	°C
Operation temperature Betriebstemperatur			T_{op}	-40….+125	°C
Insulation properties **Modulisolation**					
Insulation voltage Isolationsspannung		t=1min	V_{is}	4000	Vdc
Creepage distance Kriechstrecke				min 12,7	mm
Clearance Luftstrecke				min 12,7	mm

Characteristic values

Description	Symbol	Conditions T(C°)	Other conditions (Rgon-Rgoff)	VGE(V) VGS(V)	V_R(V) VCE(V) VDS(V)	IC(A) IF(A) Id(A)	Datasheet values Min	Typ	Max	Unit
Input Rectifier Bridge **Gleichrichter**										
Forward voltage Durchlaßpannung	V_F	Tj=25°C				30	0,8	1,24 1,23	1,4	V
Threshold voltage (for power loss calc. only) Schleusenspannung	V_{to}	Tj=25°C				30		0,92		V
Slope resistance (for power loss calc. only) Ersatzwiderstand	r_t	Tj=25°C				30		10		mOhm
Reverse current Sperrstrom	I_r	Tj=25°C			1200				0,01	mA
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R_{thJH}		Thermal grease thickness≤50um					2		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip	R_{thJC}		Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,3		K/W
Transistor Inverter, inductive load **Transistor Wechselrichter**										
Gate emitter threshold voltage Gate-Schwellenspannung	$V_{GE(th)}$	Tj=25°C Tj=125°C	VCE=VGE			0,0004	4,5	5,5	6,5	V
Collector-emitter saturation voltage Kollektor-Emitter Sättigungsspannung	$V_{CE(sat)}$	Tj=25°C Tj=125°C		15		10	1,6	1,90 2,13	2,65	V
Collector-emitter cut-off incl.FRED Kollektor-Emitter Reststrom inkl.FRED	I_{CES}	Tj=25°C Tj=125°C		0	600				0,25	mA
Gate-emitter leakage current Gate-Emitter Reststrom	I_{GES}	Tj=25°C Tj=125°C		25	0				180	nA
Turn-on delay time Einschaltverzögerungszeit	$t_{d(on)}$	Tj=25°C Tj=125°C	 Rgon=34,5 Ohm	15	300	10		 17		ns
Rise time Anstiegszeit	t_r	Tj=25°C Tj=125°C	 Rgon=34,5 Ohm	15	300	10		 17		ns
Turn-off delay time Abschaltverzögerungszeit	$t_{d(off)}$	Tj=25°C Tj=125°C	 Rgoff=17,25 Ohm	15	300	10		 128		ns
Fall time Fallzeit	t_f	Tj=25°C Tj=125°C	 Rgoff=17,25 Ohm	15	300	10		 57		ns
Turn-on energy loss per pulse Einschaltverlustenergie pro Puls	E_{on}	Tj=25°C Tj=125°C	 Rgon=34,5 Ohm	15	300	10		 0,265		mWs
Turn-off energy loss per pulse Abschaltverlustenergie pro Puls	E_{off}	Tj=25°C Tj=125°C	 Rgoff=17,25 Ohm	15	300	10		 0,3		mWs
Input capacitance Eingangskapazität	C_{ies}	Tj=25°C Tj=125°C	f=1MHz	0	25			0,45		nF
Output capacitance Ausgangskapazität	C_{oss}	Tj=25°C Tj=125°C	f=1MHz	0	25					nF
Reverse transfer capacitance Rückwirkungskapazität	C_{rss}	Tj=25°C Tj=125°C	f=1MHz	0	25			0,04		nF
Gate charge Gate Ladung	Q_{Gate}	Tj=25°C Tj=125°C		15	300			39		nC
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R_{thJH}		Thermal grease thickness≤50um					2,2		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip	R_{thJC}		Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,45		K/W

Characteristic values

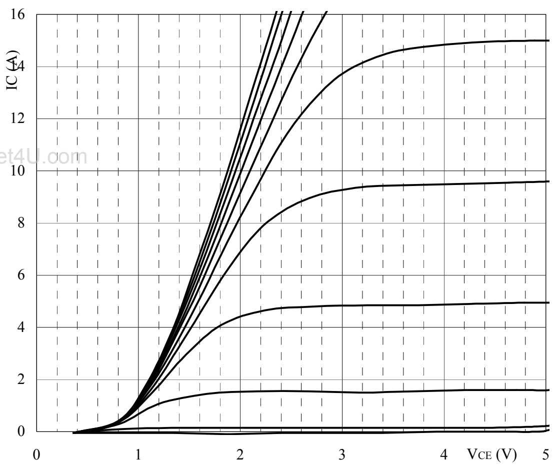
Description	Symbol	Conditions T(C°)	Other conditions (Rgon-Rgoff)	VGE(V) VGS(V)	V_R(V) VCE(V) VDS(V)	IC(A) IF(A) Id(A)	Datasheet values Min	Typ	Max	Unit
Diode Inverter										
Diode Wechselrichter										
Diode forward voltage	V_F	Tj=25°C				10	1	1,50	1,9	V
Durchlaßspannung		Tj=125°C						1,45		
Peak reverse recovery current	I_{RRM}	Tj=25°C		15	300	10				A
Rückstromspitze		Tj=125°C	Rgon=34,5 Ohm					10,5		
Reverse recovery time	t_{rr}	Tj=25°C		15	300	10				ns
Sperreverzögerungszeit		Tj=125°C	Rgon=34,5 Ohm					210		
Reverse recovered charge	Q_{rr}	Tj=25°C		15	300	10				uC
Sperrverzögerungsladung		Tj=125°C	Rgon=34,5 Ohm					0,88		
Reverse recovered energy	E_{rec}	Tj=25°C		15	300	10				mWs
Sperrverzögerungsenergie		Tj=125°C	Rgon=34,5 Ohm					0,17		
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R_{thJH}		Thermal grease thickness≤50um					2,7		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip	R_{thJC}		Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,8		K/W
Transistor BRC										
Transistor BRC										
Gate emitter threshold voltage	$V_{GE(th)}$	Tj=25°C	VCE=VGE			0,0002	3	4	5	V
Gate-Schwellenspannung		Tj=125°C								
Collector-emitter saturation voltage	$V_{CE(sat)}$	Tj=25°C		15		8	1,6	2,3	2,55	V
Kollektor-Emitter Sättigungsspannung		Tj=125°C						2,6		
Collector-emitter cut-off	I_{CES}	Tj=25°C		0	600				0,03	mA
Kollektor-Emitter Reststrom		Tj=125°C								
Gate-emitter leakage current	I_{GES}	Tj=25°C		25	0				180	nA
Gate-Emitter Reststrom		Tj=125°C								
Turn-on delay time	$t_{d(on)}$	Tj=25°C		15	300	8				ns
Einschaltverzögerungszeit		Tj=125°C	Rgon=51 Ohm					12		
Rise time	t_r	Tj=25°C		15	300	8				ns
Anstiegszeit		Tj=125°C	Rgon=51 Ohm					12		
Turn-off delay time	$t_{d(off)}$	Tj=25°C		15	300	8				ns
Abschaltverzögerungszeit		Tj=125°C	Rgoff=25,5 Ohm					130		
Fall time	t_f	Tj=25°C		15	300	8				ns
Fallzeit		Tj=125°C	Rgoff=25,5 Ohm					18		
Turn-on energy loss per pulse	E_{on}	Tj=25°C		15	300	8				uWs
Einschaltverlustenergie pro Puls		Tj=125°C	Rgon=51 Ohm					0,191		
Turn-off energy loss per pulse	E_{off}	Tj=25°C		15	300	8				uWs
Abschaltverlustenergie pro Puls		Tj=125°C	Rgoff=25,5 Ohm					0,131		
Input capacitance	C_{iss}	Tj=25°C	f=1MHz	0	25			0,35	0,42	nF
Eingangskapazität		Tj=125°C								
Output capacitance	C_{oss}	Tj=25°C	f=1MHz	0	25			0,038	0,046	nF
Ausgangskapazität		Tj=125°C								
Reverse transfer capacitance	C_{rss}	Tj=25°C	f=1MHz	0	25			0,023	0,028	nF
Rückwirkungskapazität		Tj=125°C								
Gate charge	Q_{Gate}	Tj=25°C		15	480	6		32	42	nC
Gate Ladung		Tj=125°C								
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R_{thJH}		Thermal grease thickness≤50um					2,2		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip	R_{thJC}		Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,45		K/W

Characteristic values

Description	Symbol	Conditions					Datasheet values			Unit
		T(C°)	Other conditions (Rgon-Rgoff)	VGE(V) VGS(V)	V_R(V) VCE(V) VDS(V)	IC(A) IF(A) Id(A)	Min	Typ	Max	
Diode BRC										
Diode BRC										
Diode forward voltage Durchlaßspannung	V_F	Tj=25°C Tj=125°C				8	0,7	1,37 1,28	1,5	V
Reverse current Sperrstrom	I_r	Tj=25°C			600				0,25	uA
Peak reverse recovery current Rückstromspitze	I_{RRM}	Tj=25°C Tj=125°C	Rgon=51 Ohm	15	300	8		12,6		A
Reverse recovery time Sperrverzögerungszeit	trr	Tj=25°C Tj=125°C	Rgon=51 Ohm	15	300	8		59		ns
Reverse recovered charge Sperrverzögerungsladung	Qrr	Tj=25°C Tj=125°C	Rgon=51 Ohm	15	300	8		0,37		uC
Reverse recovered energy Sperrverzögerungsenergie	Erec	Tj=25°C Tj=125°C	Rgon=51 Ohm	15	300	8		0,057		mWs
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R_{thJH}		Thermal grease thickness≤50um					2,7		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip	R_{thJC}		Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,8		K/W
NTC-Thermistor										
NTC-Widerstand										
Rated resistance Nennwiderstand	R_{25}	TC=25°C	Tol. ±5%				4,2	4,7	5,3	kOhm
Deviation of R100 Abweichung von R100	$D_{R/R}$	TC=100°C						2,56		%/K
Power dissipation given Epcos-Typ Verlustleistung Epcos-Typ angeben	P	TC=25°C						210		mW
B-value B-Wert	$B_{(25/100)}$		Tol. ±3%					3530		K

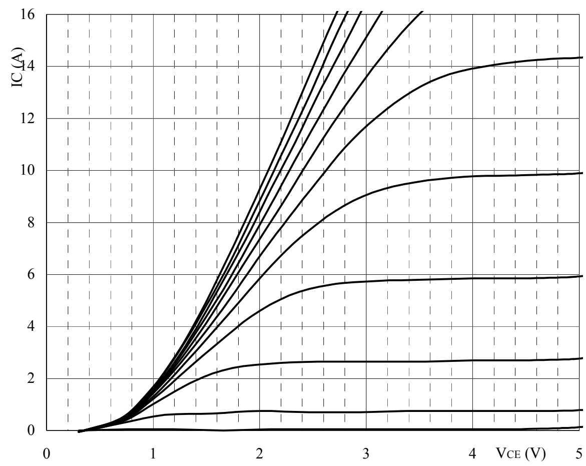
Output inverter

Figure 1. Typical output characteristics
Output inverter IGBT
Ic= f(VCE)



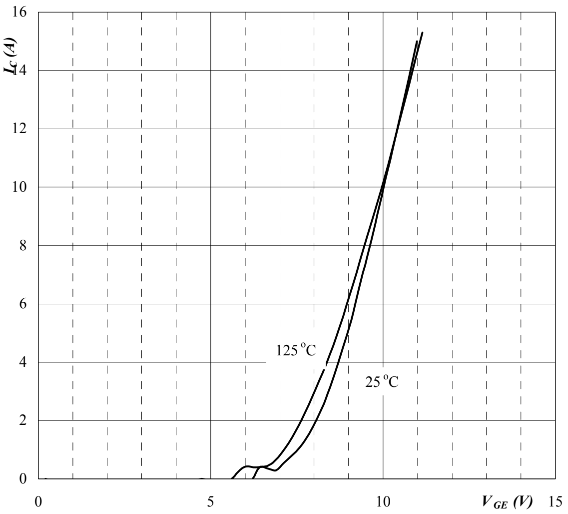
parameter: tp = 250 ms Tj = 25 °C
VGE parameter: from: 6 V to 16 V in 1 V steps

Figure 2. Typical output characteristics
Output inverter IGBT
Ic= f(VCE)



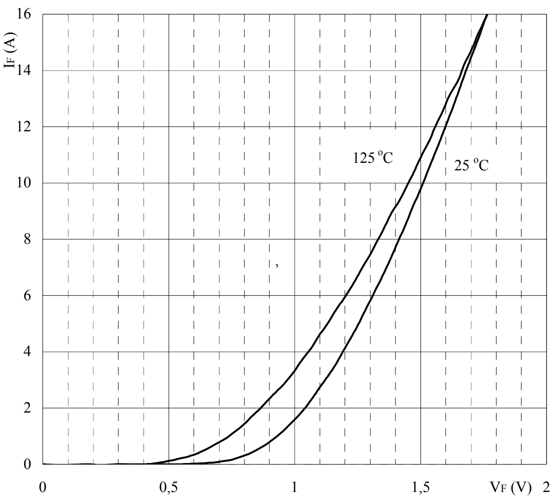
parameter: tp = 250 ms Tj = 125 °C
VGE parameter: from: 6 V to 16 V in 1 V steps

Figure 3. Typical transfer characteristics
Output inverter IGBT
Ic= f(VGE)



parameter: tp = 250 ms VCE = 11 V

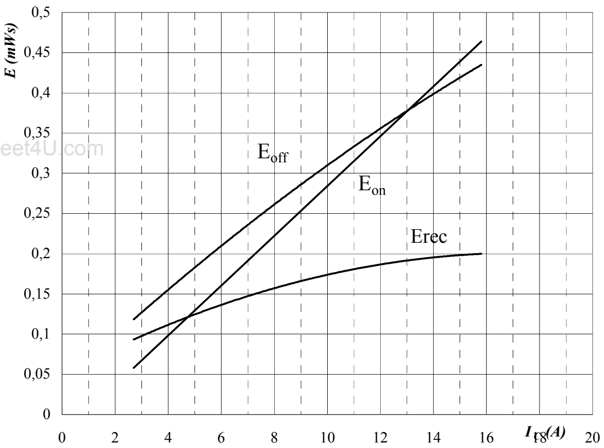
Figure 4. Typical diode forward current as a function of forward voltage
Output inverter FRED IF=f(VF)



parameter: tp = 250 ms

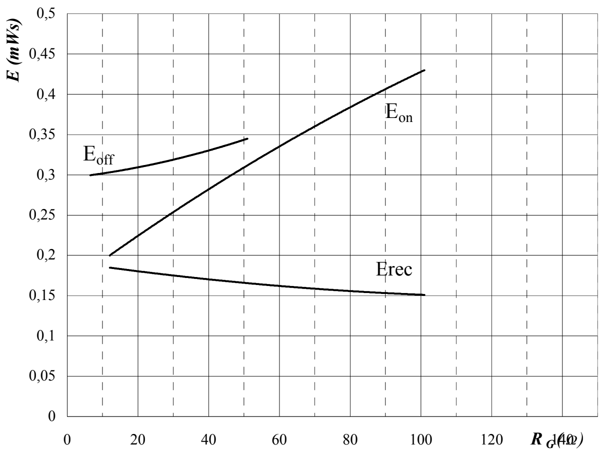
Output inverter

Figure 5. Typical switching energy losses as a function of collector current
Output inverter IGBT
E = f (Ic)



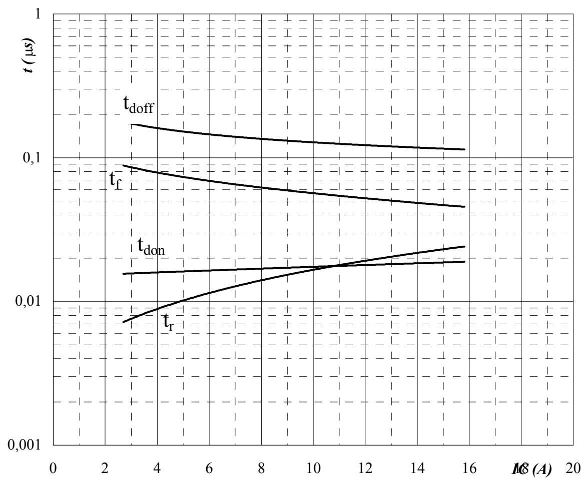
inductive load, Tj = 125 °C
VCE = 300 V
VGE= 15 V
RGon = 2*RGoff = 34,5 Ohm

Figure 6. Typical switching energy losses as a function of gate resistor
Output inverter IGBT
E = f (RG)



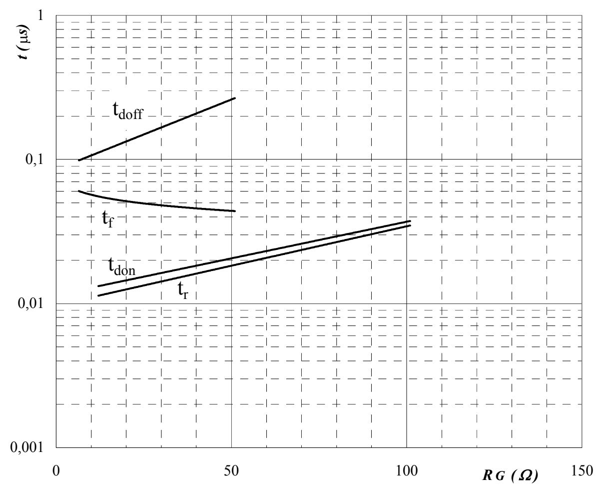
inductive load, Tj = 125 °C
VCE = 300 V
VGE= 15 V
Ic = 10 A

Figure 7. Typical switching times as a function of collector current
Output inverter IGBT
t = f (Ic)



inductive load, Tj = 125 °C
VCE = 300 V
VGE= 15 V
RGon = 2*RGoff = 34,5 Ohm

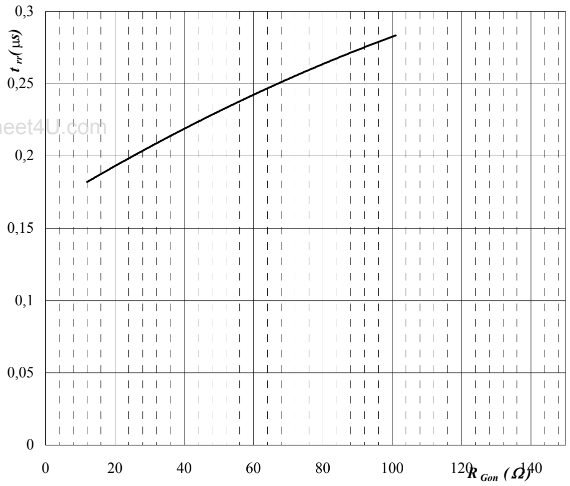
Figure 8. Typical switching times as a function of gate resistor
Output inverter IGBT
t = f (RG)



inductive load, Tj = 125 °C
VCE = 300 V
VGE= 15 V
Ic = 10 A

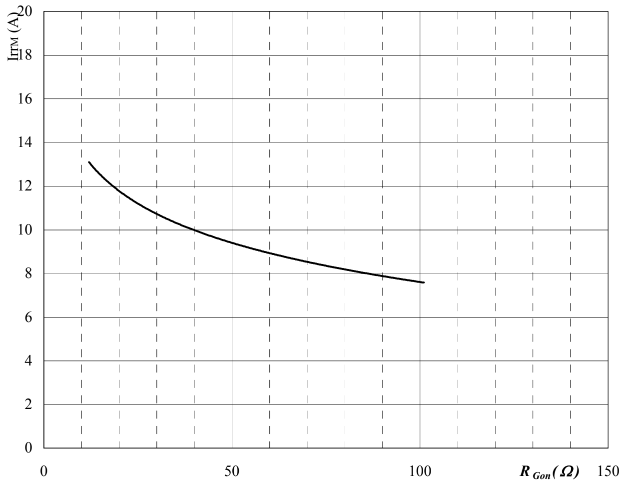
Output inverter

Figure 9. Typical reverse recovery time as a function of IGBT turn on gate resistor
Output inverter FRED diode
trr = f (Rgon)



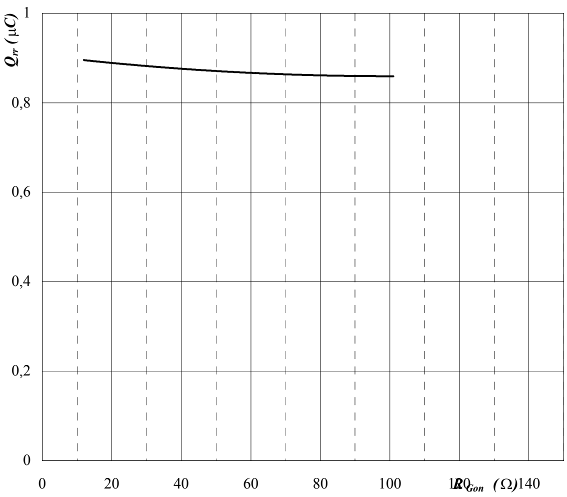
Tj = 125 °C
VR = 300 V
IF = 10 A

Figure 10. Typical reverse recovery current as a function of IGBT turn on gate resistor
Output inverter FRED diode
IRRM = f (Rgon)



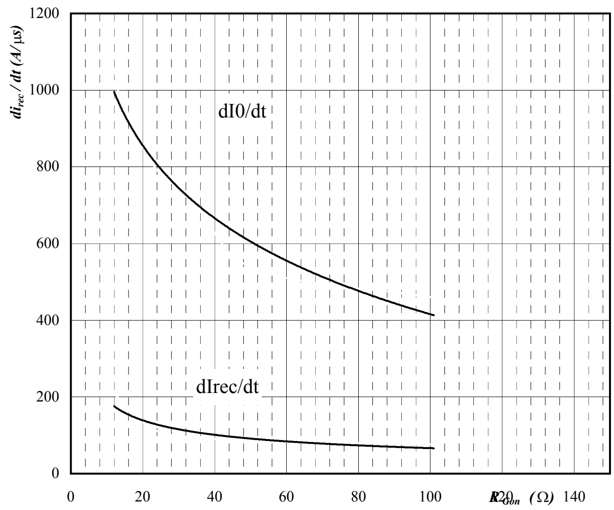
Tj = 125 °C
VR = 300 V
IF = 10 A

Figure 11. Typical reverse recovery charge as a function of IGBT turn on gate resistor
Output inverter FRED diode
Qrr = f (Rgon)



Tj = 125 °C
VR = 300 V
IF = 10 A

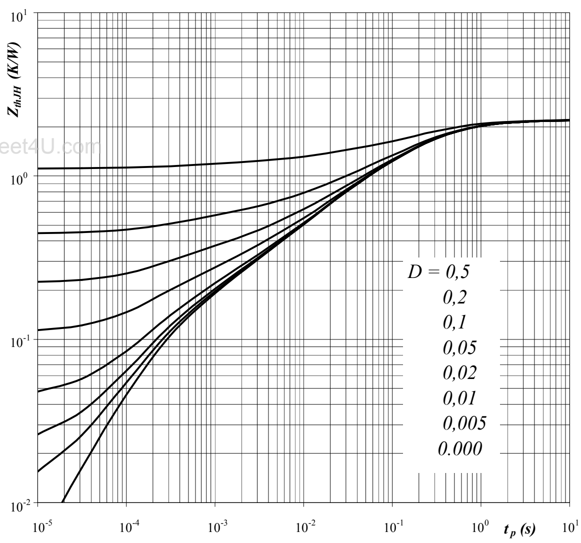
Figure 12. Typical rate of fall of forward and reverse recovery current as a function of IGBT turn on gate resistor
Output inverter FRED diode
dI0/dt,dIrec/dt= f (Rgon)



Tj = 125 °C
VR = 300 V
IF = 10 A

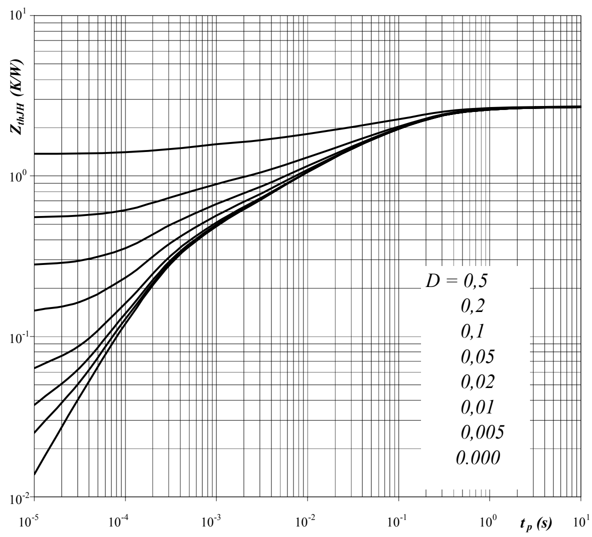
Output inverter

Figure 13. IGBT transient thermal impedance as a function of pulse width
ZthJH = f(tp)



Parameter: D = tp / T RthJH= 2,2 K/W

Figure 14. FRED transient thermal impedance as a function of pulse width
ZthJH = f(tp)



Parameter: D = tp / T RthJH= 2,7 K/W

IGBT thermal model values

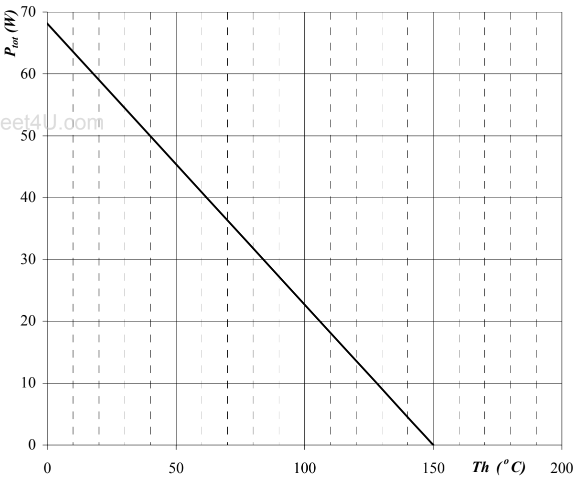
R (C/W)	Tau (s)
0,04	6,7E+01
0,18	2,1E+00
0,77	3,5E-01
0,70	7,8E-02

FRED thermal model values

R (C/W)	Tau (s)
0,07	9,5E+01
0,13	1,8E+00
0,49	2,8E-01
0,85	8,0E-02

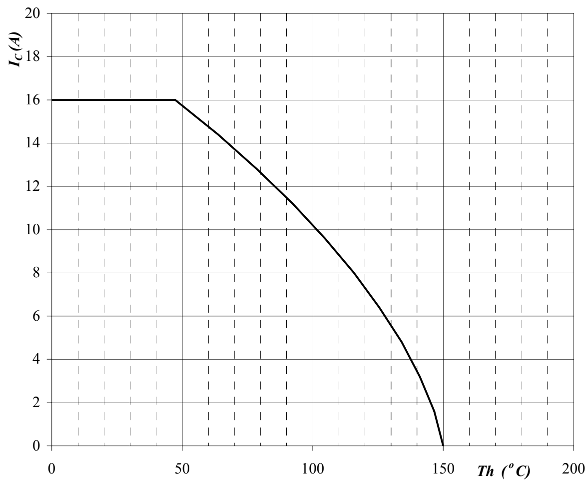
Output inverter

Figure 15. Power dissipation as a function of heatsink temperature
Output inverter IGBT
Ptot = f (Th)



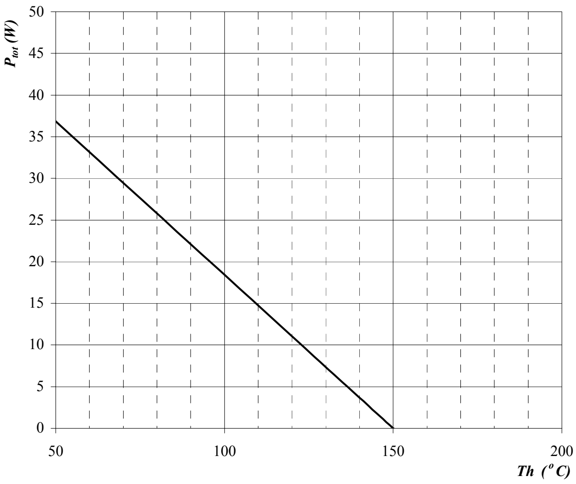
parameter: Tj = 150°C

Figure 16. Collector current as a function of heatsink temperature
Output inverter IGBT
Ic = f (Th)



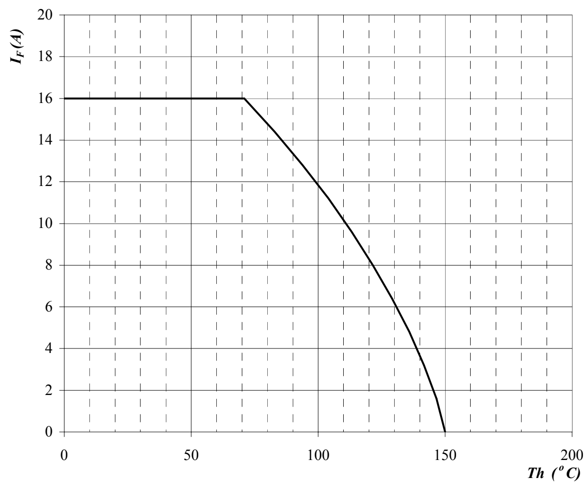
parameter: Tj = 150°C
V_{GE}= 15 V

Figure 17. Power dissipation as a function of heatsink temperature
Output inverter FRED
Ptot = f (Th)



parameter: Tj = 150°C

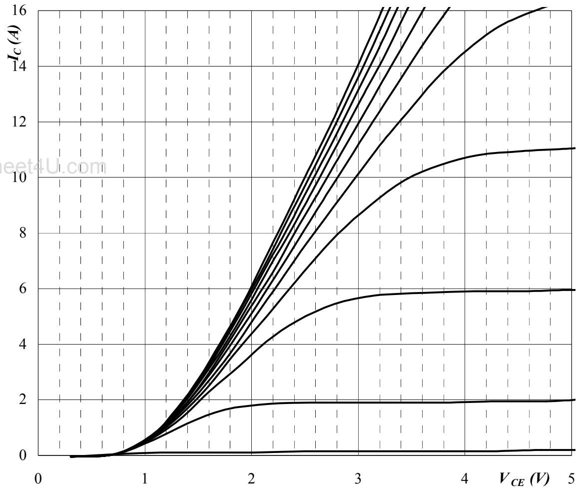
Figure 18. Forward current as a function of heatsink temperature
Output inverter FRED
IF = f (Th)



parameter: Tj = 150°C

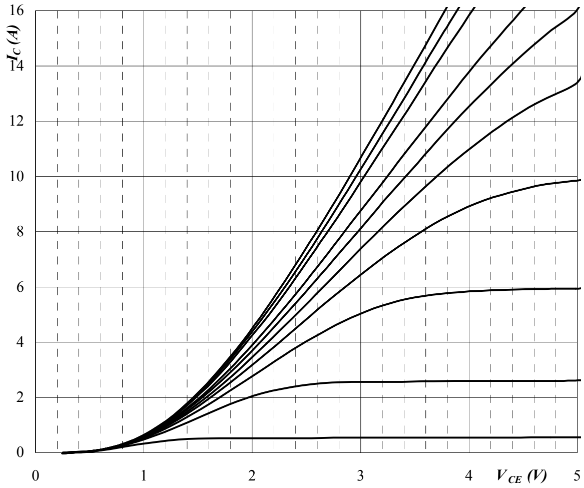
Brake

Figure 19. Typical output characteristics
Brake IGBT
Ic= f(VCE)



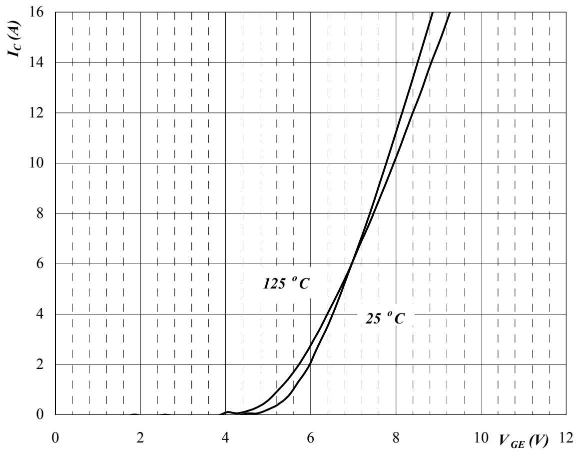
parameter: tp = 250 ms Tj = 25 °C
VGE parameter: from: 5 V to 15 V
in 1 V steps

Figure 20. Typical output characteristics
Brake IGBT
Ic= f(VCE)



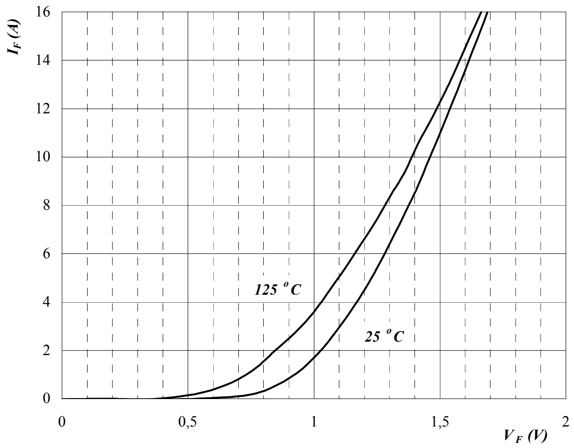
parameter: tp = 250 ms Tj = 125 °C
VGE parameter: from: 5 V to 15 V
in 1 V steps

Figure 21. Typical transfer characteristics
Brake IGBT
Ic= f(VGE)



parameter: tp = 250 ms VCE = 10 V

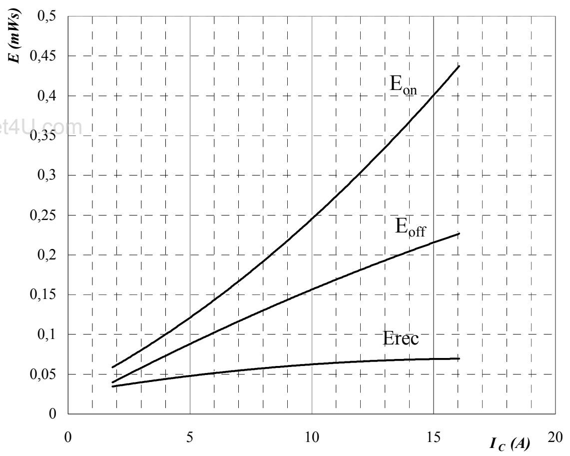
Figure 22. Typical diode forward current as a function of forward voltage
Brake FRED IF=f(VF)



parameter: tp = 250 ms

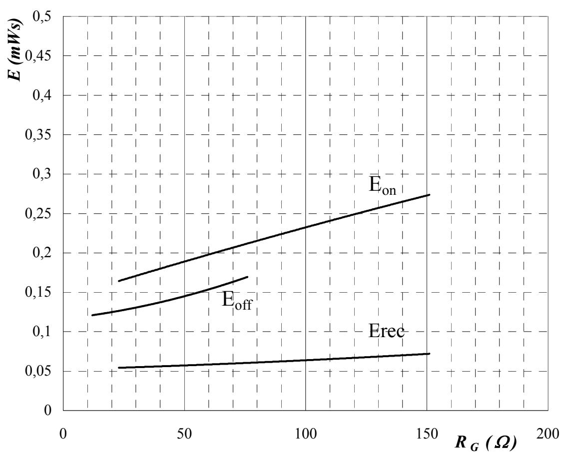
Brake

Figure 23. Typical switching energy losses as a function of collector current
Brake IGBT
E = f (Ic)



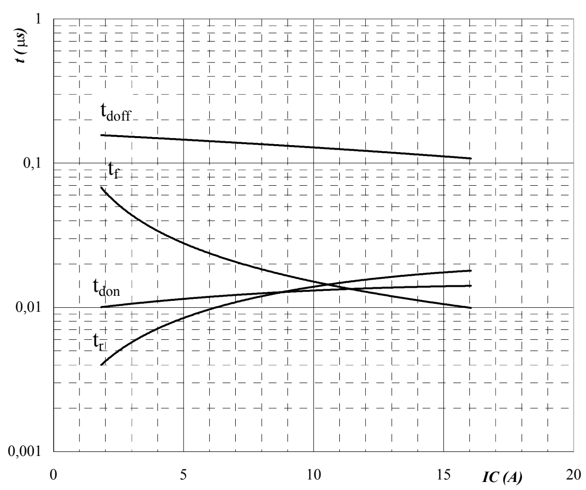
inductive load, Tj = 125 °C
V_{CE} = 300 V
V_{GE}= 15 V
R_{Gon} = 2*R_{Goff} = 51 Ohm

Figure 24. Typical switching energy losses as a function of gate resistor
Brake IGBT
E = f (RG)



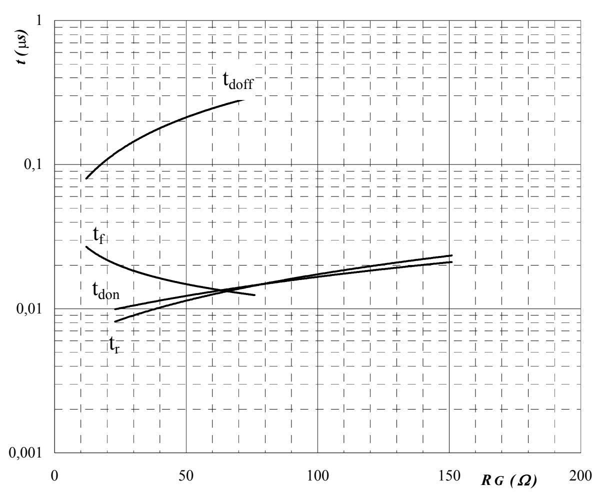
inductive load, Tj = 125 °C
V_{CE} = 300 V
V_{GE}= 15 V
Ic = 8 A

Figure 25. Typical switching times as a function of collector current
Brake IGBT
t = f (Ic)



inductive load, Tj = 125 °C
V_{CE} = 300 V
V_{GE}= 15 V
R_{Gon} = 2*R_{Goff} = 51 Ohm

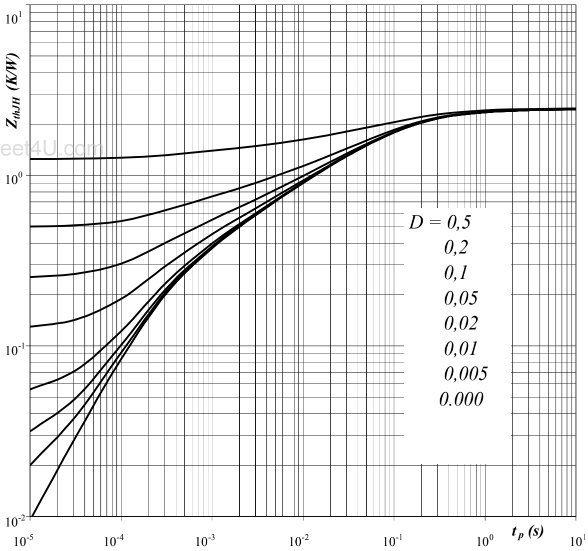
Figure 26. Typical switching times as a function of gate resistor
Brake IGBT
t = f (RG)



inductive load, Tj = 125 °C
V_{CE} = 300 V
V_{GE}= 15 V
Ic = 8 A

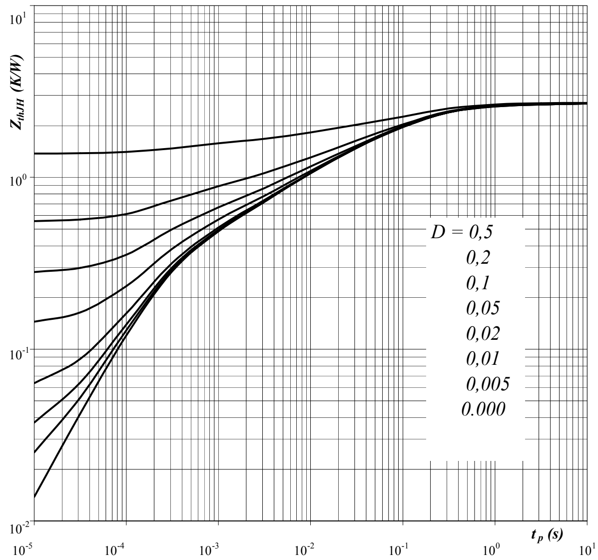
Brake

Figure 27. IGBT transient thermal impedance as a function of pulse width
ZthJH = f(tp)



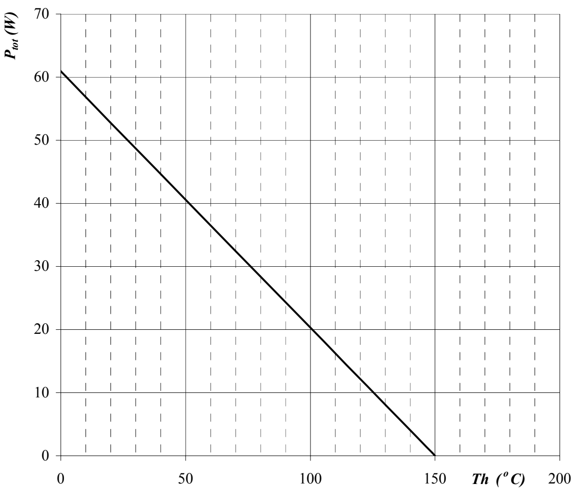
Parameter: D = tp / T RthJH= 2,2 K/W

Figure 28. FRED transient thermal impedance as a function of pulse width
ZthJH = f(tp)



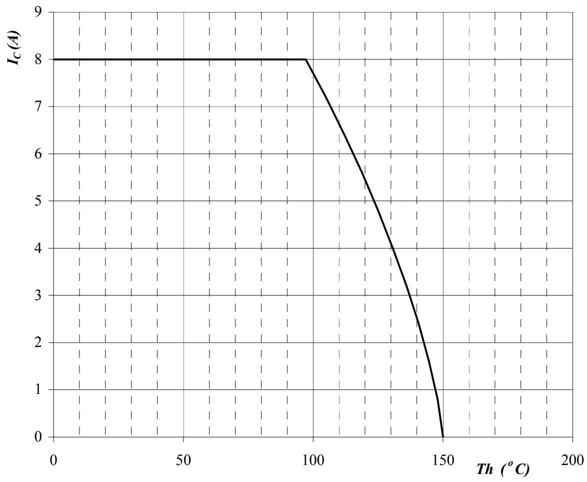
Parameter: D = tp / T RthJH= 2,7 K/W

Figure 29. Power dissipation as a function of heatsink temperature
Brake IGBT
Ptot = f (Th)



parameter: Tj = 150°C

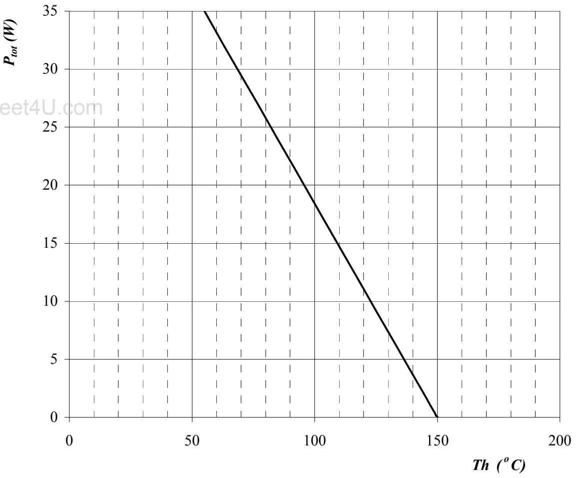
Figure 30. Collector current as a function of heatsink temperature
Brake IGBT
Ic = f (Th)



parameter: Tj = 150°C
V_{GE}= 0 V

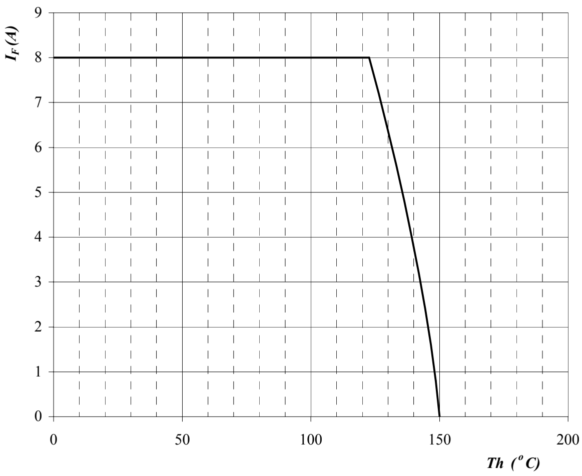
Brake

Figure 31. Power dissipation as a function of heatsink temperature
Brake FRED
Ptot = f (Th)



parameter: Tj = 150°C

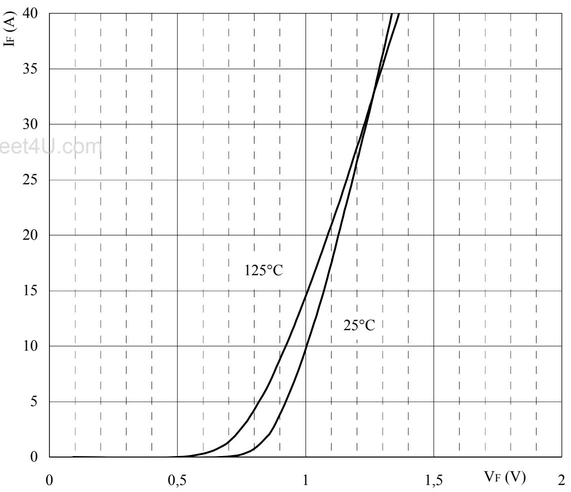
Figure 32. Forward current as a function of heatsink temperature
Brake FRED
IF = f (Th)



parameter: Tj = 150°C

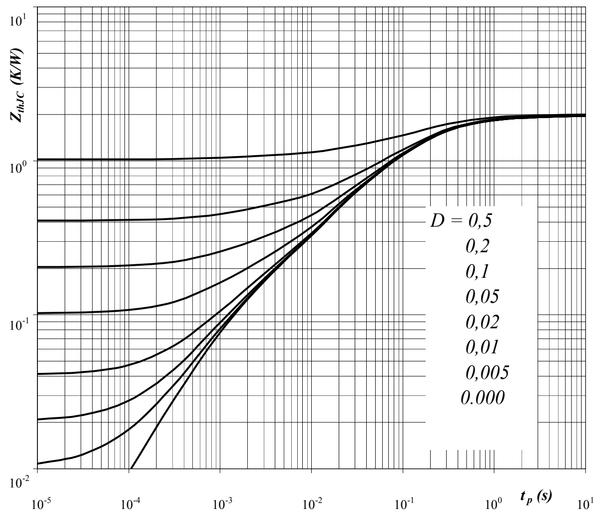
Input rectifier bridge

Figure 33. Typical diode forward current as a function of forward voltage
Rectifier diode IF=f(VF)



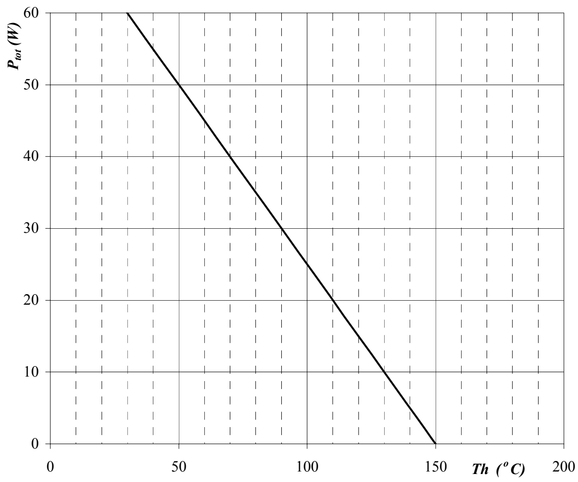
parameter: tp = 250 ms

Figure 34. Diode transient thermal impedance as a function of pulse width
ZthJH = f(tp)



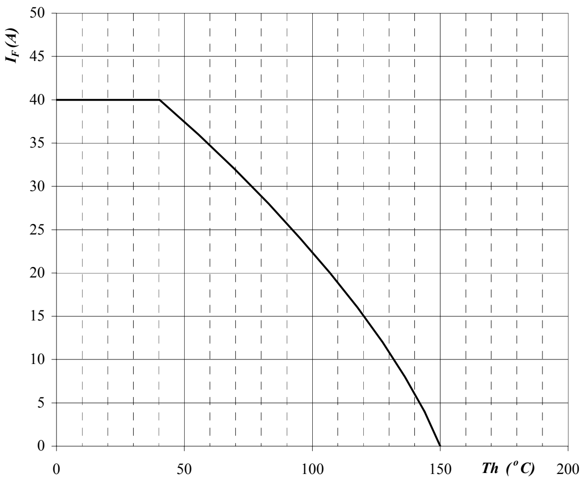
Parameter: D = tp / T RthJH= 2,0 K/W

Figure 35. Power dissipation as a function of heatsink temperature
Rectifier diode
Ptot = f (Th)



parameter: Tj = 150°C

Figure 36. Forward current as a function of heatsink temperature
Rectifier diode
IF = f (Th)

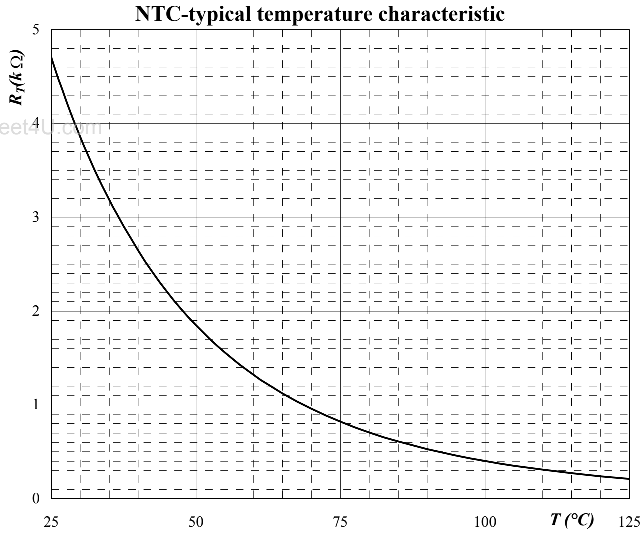


parameter: Tj = 150°C

Thermistor

Figure 37. Typical NTC characteristic as a function of temperature

$R_T = f(T)$

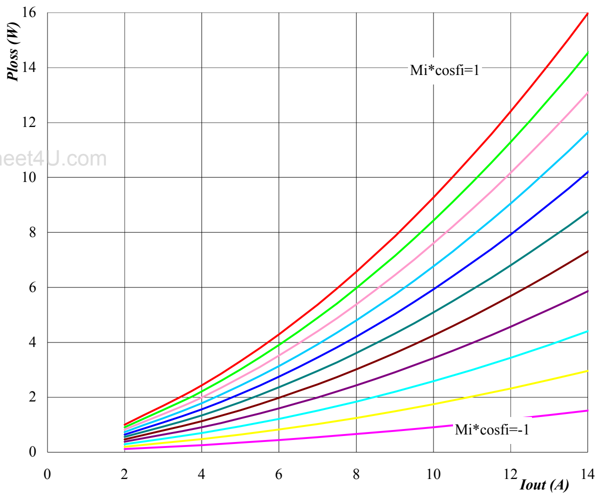


Output inverter application

General conditions: 3 phase SPWM, Vgeon= 15 V Vgeoff=0V Rgon= 34,5 ohms Rgoff= 17,3 ohms

Figure 1. Typical avarage static loss as a function of output current

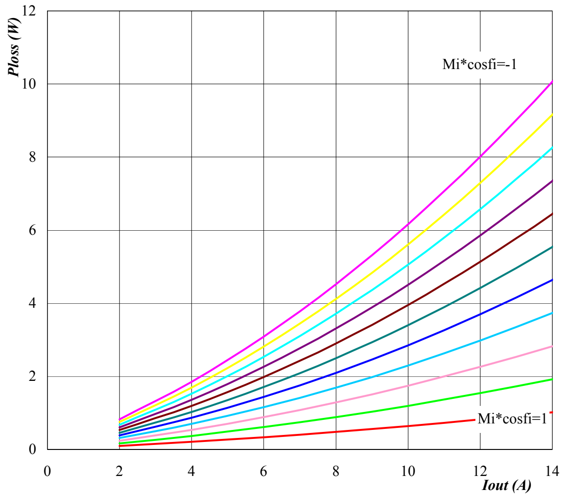
IGBT Ploss=f(Iout)



Conditions: Tj=125°C
Modulation index * cosfi
parameter Mi*cosfi from -1,00 to 1,00
in 0,20 steps

Figure 2. Typical avarage static loss as a function of output current

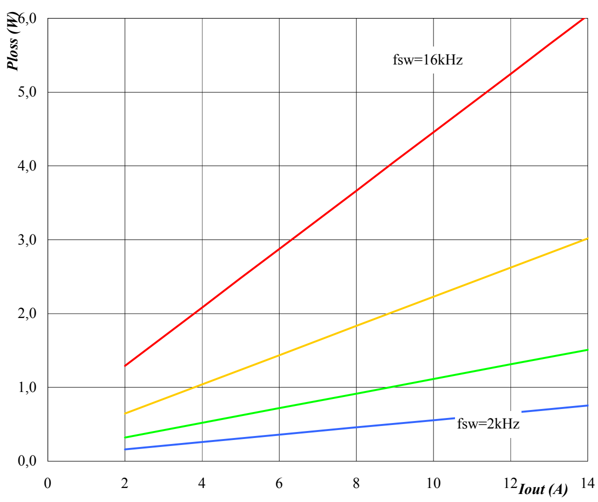
FRED Ploss=f(Iout)



Conditions: Tj=125°C
Modulation index * cosfi
parameter Mi*cosfi from -1,00 to 1,00
in 0,20 steps

Figure 3. Typical avarage switching loss as a function of output current

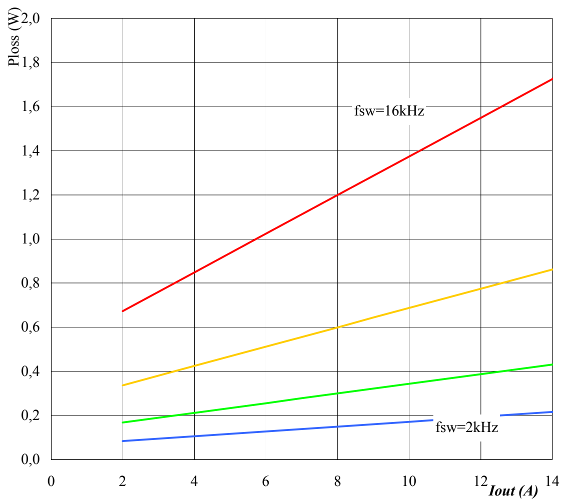
IGBT Ploss=f(Iout)



Conditions: Tj=125C
DC link= 320 V
Switching freq. fsw from 2 kHz to 16 kHz
parameter in * 2 steps

Figure 4. Typical avarage switching loss as a function of output current

FRED Ploss=f(Iout)



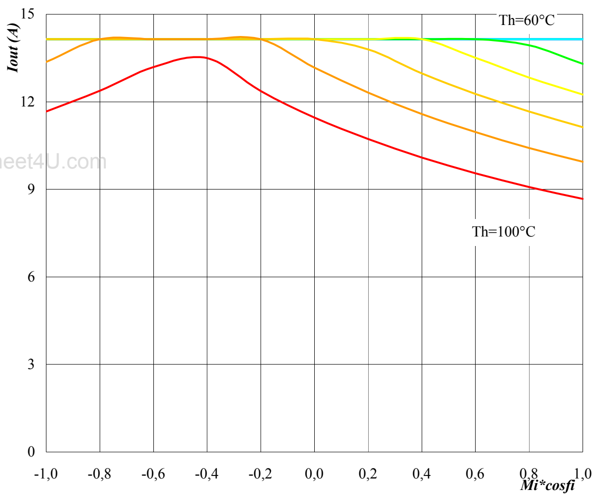
Conditions: Tj=125C
DC link= 320 V
Switching freq. fsw from 2 kHz to 16 kHz
parameter in * 2 steps

Output inverter application

General conditions: 3 phase SPWM, Vgeon= 15 V Vgeoff=0V Rgon= 34,5 ohms Rgoff= 17,3 ohms

Figure 5. Typical available 50Hz output current as a function of Mi*cosfi

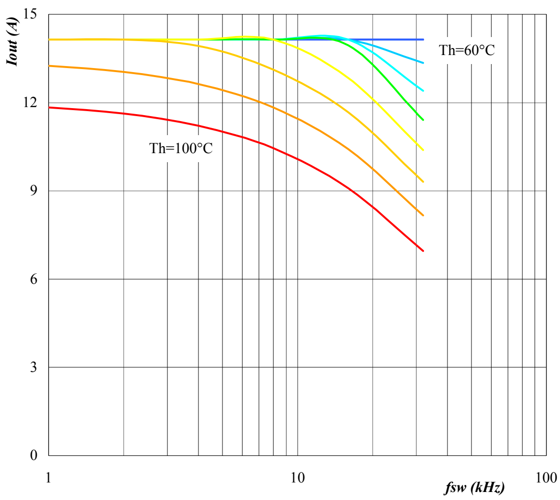
Phase Iout=f(Mi*cosfi)



Conditions:	Tj=125C			
	DC link=	320 V		
	fsw=	16 kHz		
Heatsink temp.	Th from	60 °C to	100 °C	
parameter	in	5 °C	steps	

Figure 6. Typical available 50Hz output current as a function of switching frequency

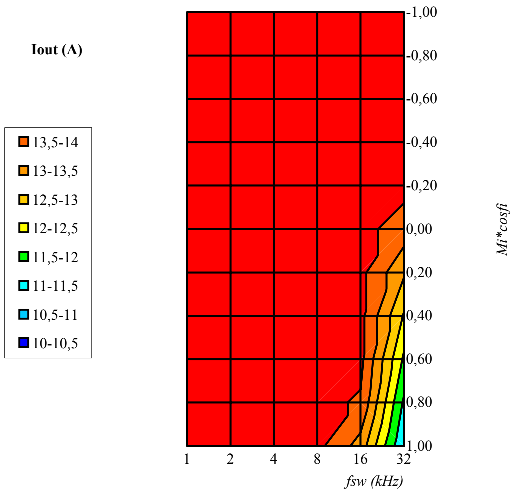
Phase Iout=f(fsw)



Conditions:	Tj=125C			
	DC link=	320 V		
	Mi*cosfi=	0,8		
Heatsink temp.	Th from	60 °C to	100 °C	
parameter	in	5 °C	steps	

Figure 7. Typical available 50Hz output current as a function of Mi*cosfi and fsw

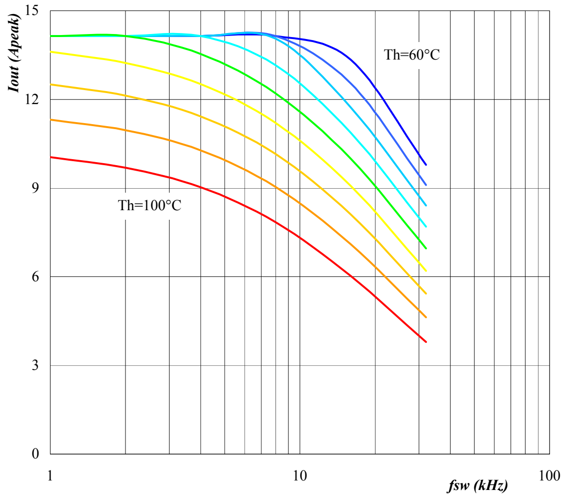
Phase Iout=f(fsw,Mi*cosfi)



Conditions:	Tj=125C	
	DC link=	320 V
	Th=	80 °C

Figure 8. Typical available 0Hz output current as a function of switching frequency

Phase Ioutpeak=f(fsw)



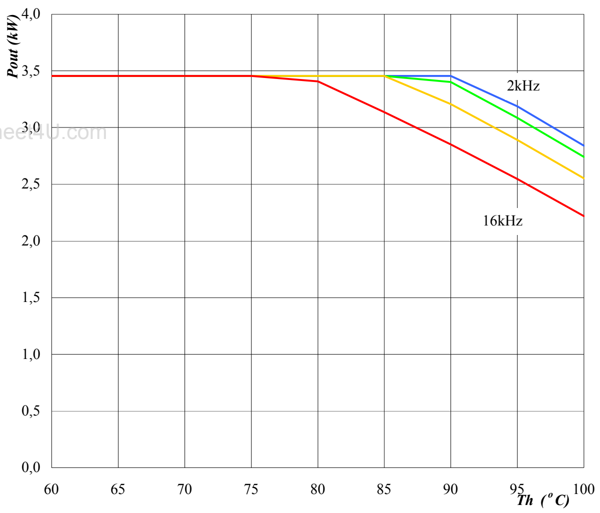
Conditions:	Tj=125C			
	DC link=	320 V		
Heatsink temp.	Th from	60 °C to	100 °C	
parameter	in	5 °C	steps	

Output inverter application

General conditions: 3 phase SPWM, Vgeon= 15 V Vgeoff=0V Rgon= 34,5 ohms Rgoff= 17,3 ohms

Figure 9. Typical available electric peak output power as a function of heatsink temperature

Inverter Pout=f(Th)



Conditions: Tj=125C

DC link= 320 V

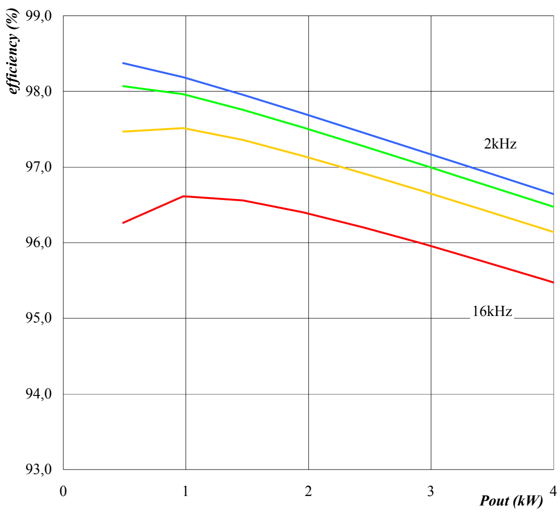
Modulation index Mi= 1

cosfi= 0,80

Switching freq. parameter: fsw from 2 kHz to 16 kHz in * 2 steps

Figure 10. Typical efficiency as a function of output power

Inverter efficiency=f(Pout)



Conditions: Tj=125C

DC link= 320 V

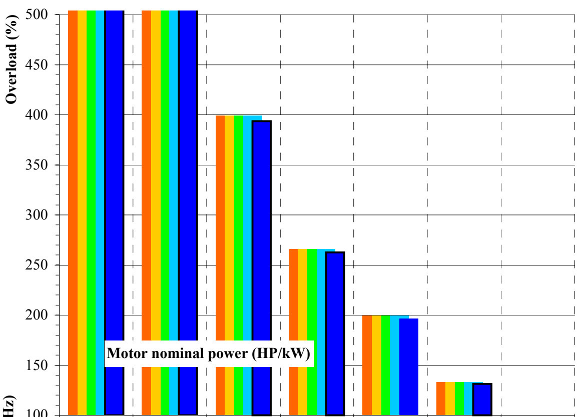
Modulation index Mi= 1

cosfi= 0,80

Switching freq. parameter: fsw from 2 kHz to 16 kHz in * 2 steps

Figure 11. Typical available overload factor as a function of motor power and switching frequency

Inverter Ppeak/Pnom=f(Pnom,fsw)



Switching frequency (kHz)	0,50 / 0,37	0,75 / 0,55	1,00 / 0,74	1,50 / 1,10	2,00 / 1,47	3,00 / 2,21	5,00 / 3,68
1	799	533	399	266	200	133	0
2	799	533	399	266	200	133	0
4	799	533	399	266	200	133	0
8	799	533	399	266	200	133	0
16	787	525	394	262	197	131	0

Conditions: Tj=125C

DC link= 320 V

Modulation index Mi= 1

cosfi= 0,8

Switching freq. parameter: fsw from 1 kHz to 16 kHz in * 2 steps

Heatsink temperature= 80 °C

Motor efficiency= 0,85